



## ***Installation Instructions***

# **RAID System**

Catalog Number 6189V-RAIDSATA

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## **About This Publication**

This publication describes how to install, configure, and validate the Redundant Array of Independent Drives (RAID) system on your 6177R VersaView Light Industrial Computer.

The procedures in this document show how to set up a RAID system using the existing hard disk drive (HDD) and a new HDD. With the RAID system, your disk drives will operate as one data storage unit providing a redundant drive system. By storing the same data on two hard drives, either hard drive can fail without data loss or system downtime. If one drive fails, it can be replaced without interrupting normal operation.

## Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication SGI-1.1 available from your local Rockwell Automation sales office or online at <http://literature.rockwellautomation.com>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.





In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

<b>WARNING</b> 	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
<b>IMPORTANT</b>	Identifies information that is critical for successful application and understanding of the product.
<b>ATTENTION</b> 	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you to identify a hazard, avoid a hazard, and recognize the consequences.
<b>SHOCK HAZARD</b> 	Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.
<b>BURN HAZARD</b> 	Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.

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## Electrostatic Discharge (ESD) Precautions

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**ATTENTION**

Electrostatic discharge (ESD) can damage static-sensitive devices or microcircuitry. Observe proper packaging and grounding techniques to prevent damage. Follow the precautions listed below.

- 
- Transport the computer and replacement parts in static-safe containers such as conductive tubes, bags, or boxes.
  - Keep electrostatic-sensitive parts in their containers until they arrive at static-free stations.
  - Cover workstations with approved static-dissipating material. Use a wrist strap connected to the work surface and properly grounded (earthed) tools and equipment.
  - Keep work area free of nonconductive materials, such as ordinary plastic assembly aids and foam packing.
  - Avoid touching pins, leads, or circuitry.
  - Always handle the hard disk drive by its metal frame and do not touch its internal components.
  - Always hold components with a printed circuit board (PCB) by its edges and lay it with the assembly-side down.

## Back Up the Hard Drive

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**IMPORTANT**

It is important that you back up all program data on your hard drive as a precautionary measure before following the procedures in these instructions.

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## Parts List

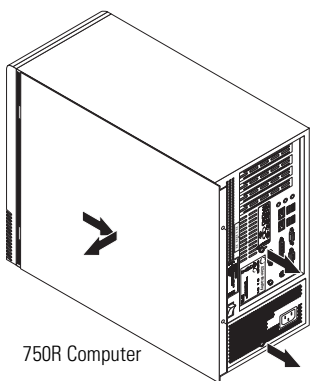
These items are shipped with the RAID system.

- RAID controller, PROMISE TX2300
- RAID drive identification label
- Antistatic wrist strap
- Cable tie
- White, VersaView Accessories CD
- Installation instructions

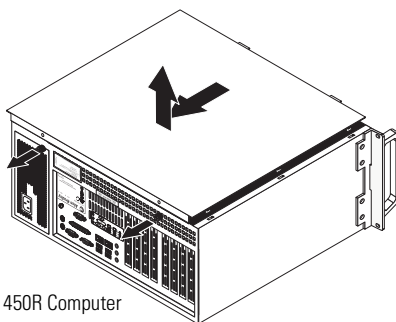
## Install the RAID Card

Follow these steps to install the RAID card in your computer.

1. Shut down the operating system.
2. Disconnect the power cord from the computer.
3. Put on your antistatic wrist band.
4. Remove the chassis cover.
  - a. Remove screws that secure the cover.
  - b. Slide cover back and pull panel away from chassis.

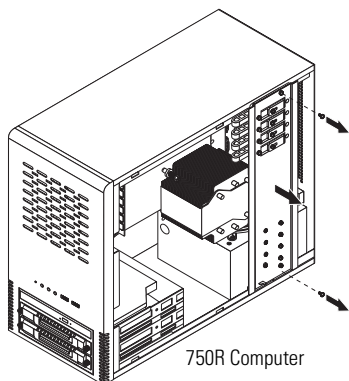


750R Computer

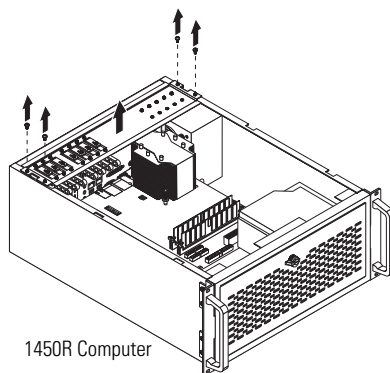


1450R Computer

5. Remove the hold-down bar to access the PCI slots.
  - a. Remove the screws that secure the hold-down bar.
  - b. Detach the hold-down bar from the chassis.
  - c. Remove the screw securing the slot cover opposite the selected PCI slot.
  - d. Pull out the slot cover.



750R Computer



1450R Computer

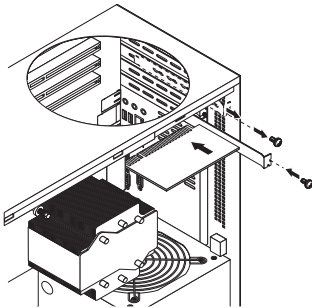
6. Insert the RAID card into the selected PCI slot applying uniform pressure along the entire top edge of the card until it is fully seated.

When the card is correctly installed in the PCI slot, the connector pins are not visible.

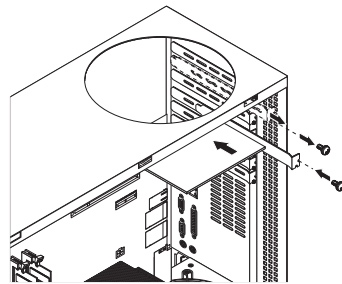
7. Secure the add-in card bracket to the chassis with its screw.

### IMPORTANT

Take precautions to prevent screws or other debris from entering the fan area of the power supply.



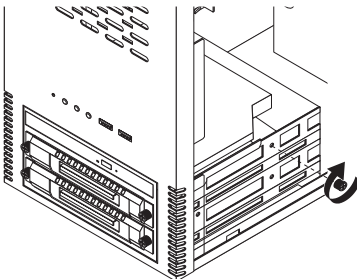
750R Computer



1450R Computer

8. Reattach the hold-down bar to the chassis, then secure it with the screws.
9. Adjust the hold-down clamp by loosening the center screw, adjusting the height of the clamp to the RAID card, and tightening the center screw.
10. Remove the security screw on the 750R computer that prevents removal of the HDD bays.

Later procedures require you to remove the unused HDD tray and install a new hard disk drive. You will not be able to do this on the 750R computer unless the security screw is removed first.

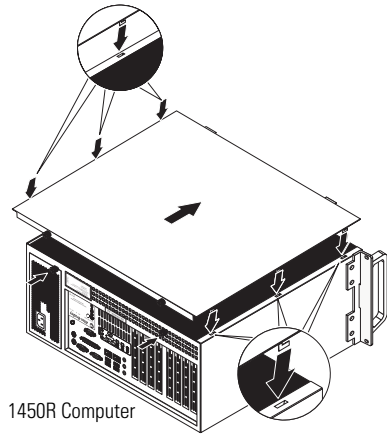
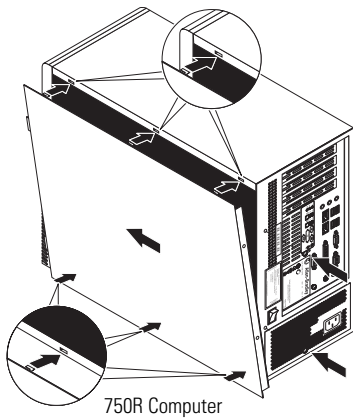


750R Computer Only

**IMPORTANT**

Do not reconfigure the Serial ATA (SATA) cables at this time. You will do this in a later procedure.

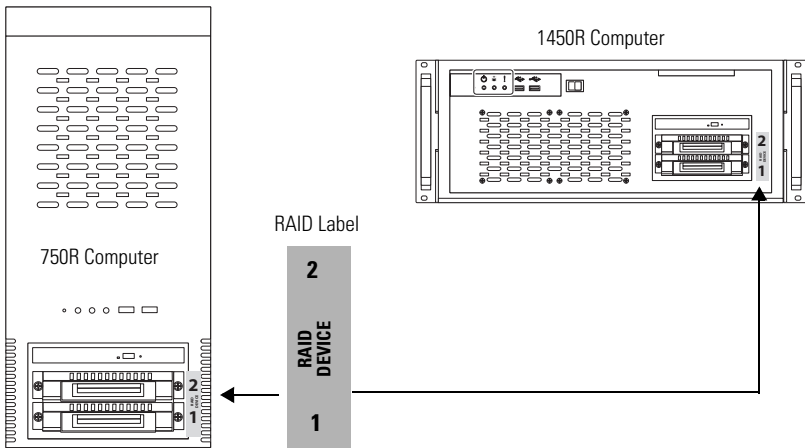
11. Reinstall the chassis cover.



## Apply the RAID Identification Label

Apply the supplied RAID identification label next to the hard drives on your computer. The RAID label will help you to identify a drive if a failure occurs.

Before affixing the label, make sure that the number 2 is next to the top drive and number 1 is next to the bottom drive.

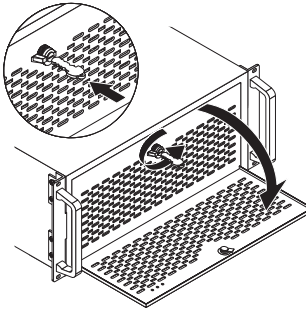


## Remove the HDD Tray

This procedure has you remove the unused HDD tray from the top HDD bay.

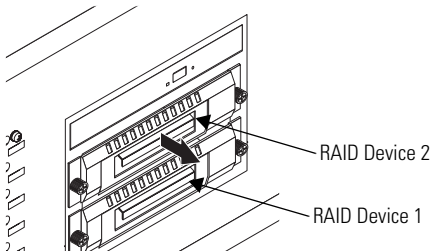
Before starting the procedure, do the following.

- Verify that the HDD security screw is removed from the 750R computer. This screw prevents removal of the hard disk drive.
- Unlock the front door (if necessary) on the 1450R computer and open to access the HDD bays.



Follow these steps to remove the unused HDD tray from the top HDD bay.

1. Remove the HDD tray from the top HDD bay, the bay for RAID Device 2.



2. Verify that your existing hard disk drive, containing the operating system, is in the bottom HDD bay, the bay for RAID Device 1.

This drive will be the source drive for the RAID 1 setup.

## Install the PCI Card Driver

Follow these steps to install the PCI card driver on your computer.

1. Make sure all peripherals, such as keyboard, mouse, and display are connected.
2. Connect the power cord to the computer.  
The system automatically restarts.
3. Insert the white, VersaView Accessories CD when the Found New Hardware Wizard screen appears.

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**IMPORTANT**

If you do not see the Found New Hardware Wizard screen, the RAID card may not be properly seated. Turn off power to computer, disconnect cables, remove chassis cover, and reseat the RAID card.

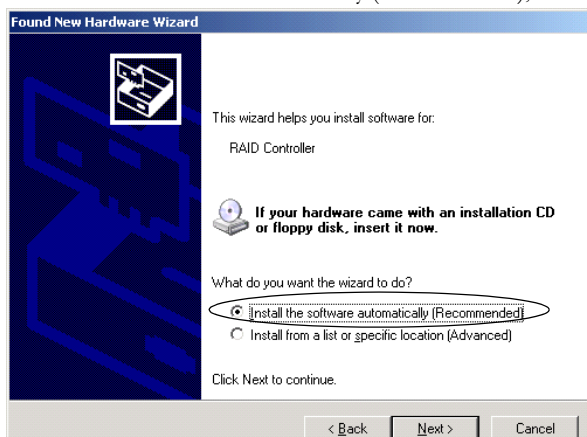
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4. Close the Explorer window if it appears.
5. Select No, not this time, then click Next.





6. Select Install the software automatically (Recommended), then click Next.



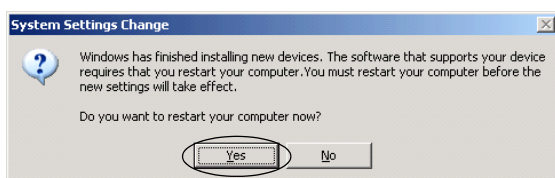
The driver installation may take a few minutes.

7. Click Finish when the driver installation is complete.



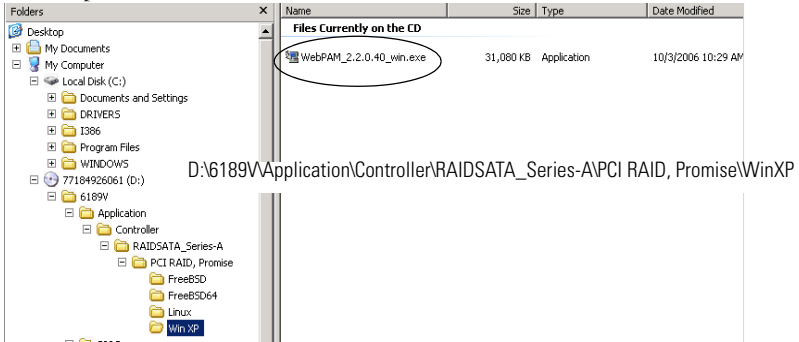
It may take 30 - 60 seconds for the System Setting Changes dialog to appear.

8. Click Yes to restart your computer now.

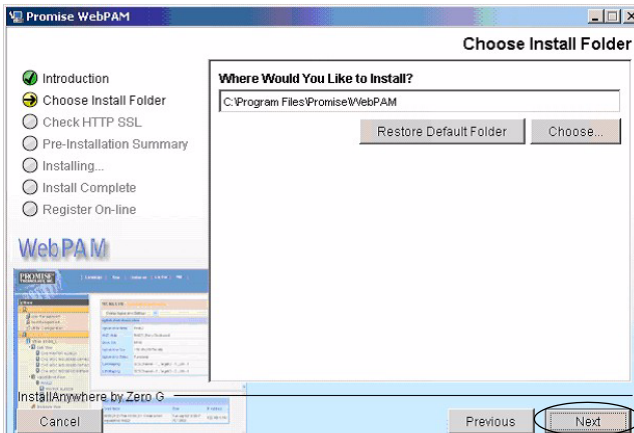


## Install the RAID Application

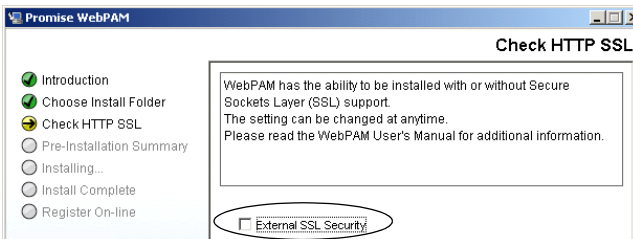
1. Browse the white, VersaView Accessories CD in Windows Explorer and locate the file webpam\_xxx\_win.exe.



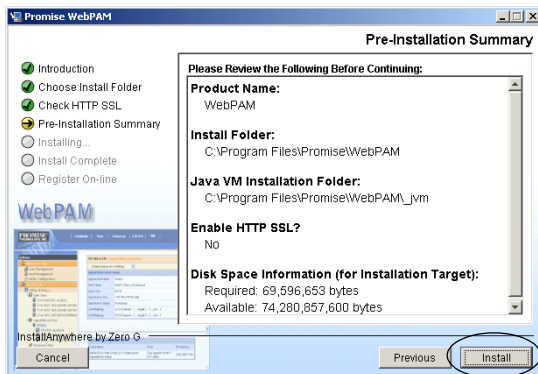
2. Double-click webpam\_xxx\_win.exe to install the RAID application.
3. Click Next when the application opens.
4. Click Next to accept the default Install folder



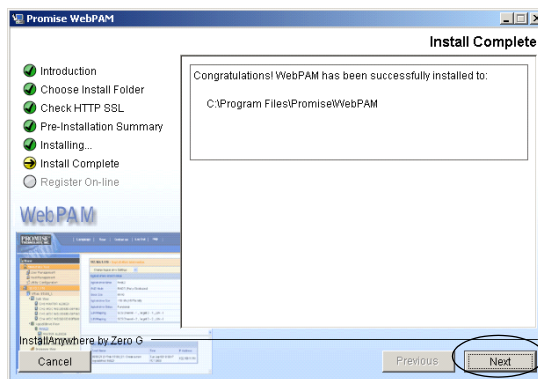
5. Uncheck the External SSL Security checkbox, if desired, and click Next. If unsure whether to disable this feature, contact your network administrator.



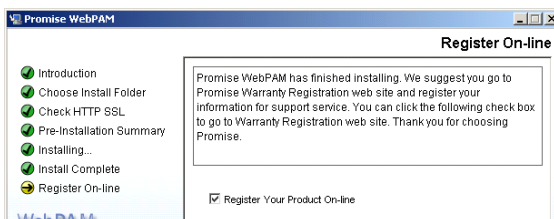
- Click Install after viewing the Pre-Installation Summary.



- When the installation is complete, click Next.



- Register online, if desired, then click Done.



- Shut down the operating system.

## Reconfigure the SATA Cables

Follow these steps to disconnect the existing Serial ATA (SATA) cables from the motherboard and reconnect them to the correct ports on the RAID card. The connectors on the SATA cables have locking latches.

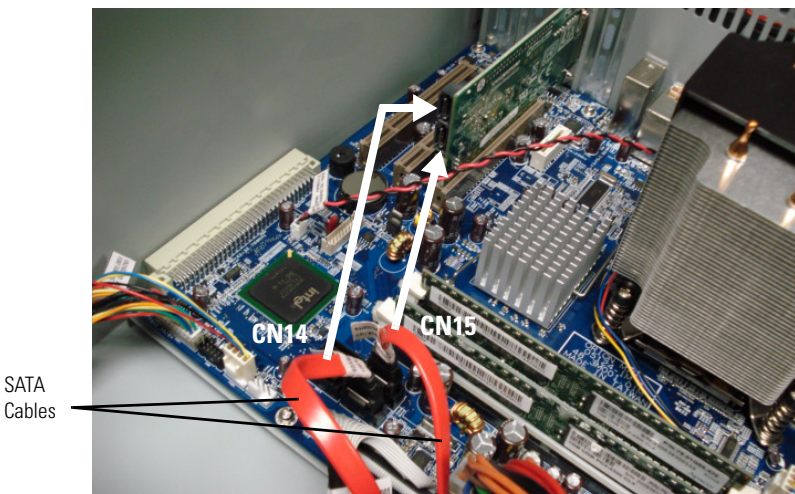
### ATTENTION



Reconnecting the SATA cables to the **correct** ports on the RAID card is critical during RAID configuration to avoid the loss of data.

---

1. Disconnect the power cord from the computer.
2. Remove the chassis cover.  
See page 4 for instructions.
3. Cut the cable tie binding the SATA cables together.
4. Disconnect the SATA cable from the **CN14** connector on the motherboard.
  - a. Remove the cable connector by depressing the metal tab.
  - b. Reroute the cable if necessary.
  - c. Reconnect the cable end to **Port 2** on the RAID card.  
When the metal tab is engaged, you will hear a click.



5. Disconnect the SATA cable from the **CN15** connector on the motherboard.
  - a. Remove the cable connector by depressing the metal tab.
  - b. Reroute the cable if necessary.
  - c. Reconnect the cable end to **Port 1** on the RAID card.
6. When the metal tab is engaged, you will hear a click.
7. Reinstall the chassis cover.

## Verify RAID Card BIOS Version

Follow these steps to verify the correct BIOS version of the RAID card. The correct BIOS version is required for compatibility with these installation instructions and proper RAID functionality.

1. Reconnect the power cord to the computer.  
The system automatically restarts.
2. Press the Pause key during startup when the FastTrack TX2300 screen appears.  
If the Pause key is not pressed at the right time and you see Operating System Not Found, restart the computer by pressing Ctrl+Alt+Delete, then try again.
3. Verify that the FastTrak TX2300 BIOS Version is **2.5.0.3122**.


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### IMPORTANT

If the BIOS version of the RAID card is not 2.5.0.3122, the RAID card will require a BIOS update. The RAID card BIOS and update utility are on the white, VersaView Accessories CD. If you need assistance updating the RAID card BIOS, contact technical support.

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RAID Card BIOS Version



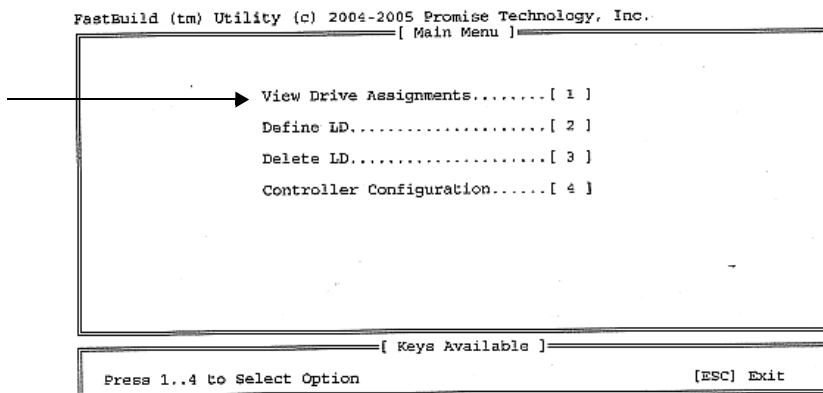
FastTrak TX2300 (tm) BIOS Version 2.5.0.3122  
(c) 2004-2005 Promise Technology, Inc. All rights reserved.

## Verify Proper SATA Cable Connections

Follow these steps to verify that the SATA cables are connected to the correct ports on the RAID card. Cable connections are critical for proper setup of the RAID configuration.

1. Restart the computer.

2. Press Ctrl+F during startup when the FastTrack TX2300 screen appears.  
If Ctrl+F is not pressed at the right time and you see Operating System Not Found, restart the computer by pressing Ctrl+Alt+Delete, then try again.
3. Press the 1 key in the FastBuild Utility menu to View Drive Assignments.



4. Verify that Channel 1 is populated with drive model information (your drive information may be different).

If the screen shows Channel 1, the SATA cables are connected properly for the RAID configuration described in these instructions.

---

**IMPORTANT**

If you see Channel 2 on the View Drive Assignments screen, the SATA cables are not connected to the correct ports on the RAID card.

- Disconnect the power cord.
  - Remove the chassis cover.
  - Swap the SATA cable connectors on the RAID card.
  - Replace the chassis cover.
  - Repeat the Verify Proper SATA Cable Connections procedure.
- 

FastBuild (tm) Utility (c) 2004-2005 Promise Technology, Inc.

[ View Drives Assignments ]

Channel	ID	Drive Model	Capacity (MB)	Assignment
	1	Mas HDS728080PLA380	82348	LD 1

Channel 1

[ Keys Available ]

[↑] Up    [↓] Down    [ESC] Exit



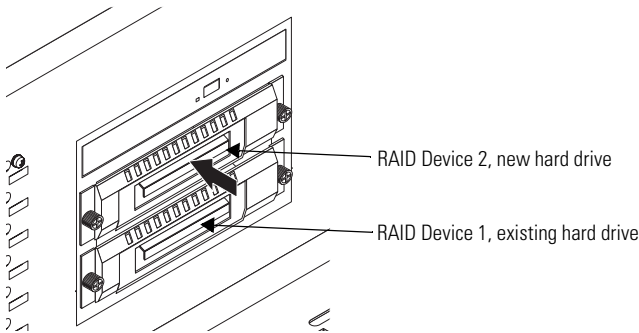
## Install a New Hard Disk Drive

Follow these steps to install a new hard disk drive in the computer.

### IMPORTANT

The HDD you install in the RAID Device 2 bay must have a disk size capacity that is greater than or equal to the existing HDD in the RAID Device 1 bay. The drive does not have to be formatted. Any data on the drive will be overwritten during the RAID duplication process.

1. Disconnect the power cord from the computer.
2. Install the new HDD tray into the RAID Device 2 bay, the top bay.
3. Tighten the screws.

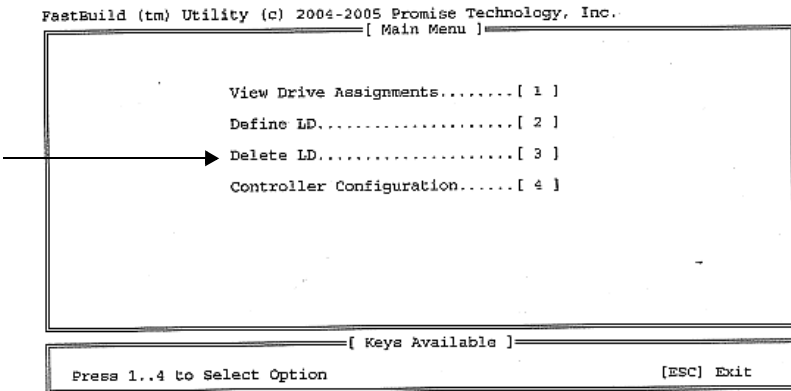


Refer to the VersaView Light Industrial Non-display Computers user manual, publication 6177R-UM001, for complete details.

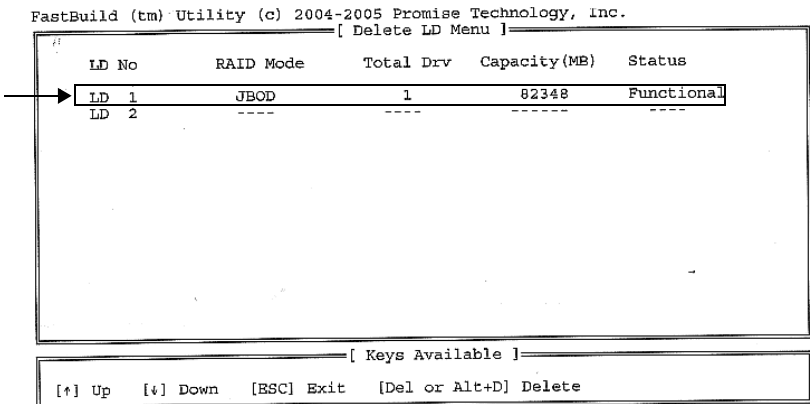
## Configure the RAID BIOS

Follow these steps to configure the RAID BIOS for RAID1 configuration.

1. Reconnect the power cord to the computer.  
The system automatically restarts.
2. Press Ctrl+F during startup when the FastTrack TX2300 screen appears.  
If Ctrl+F is not pressed at the right time and you see Operating System Not Found, restart the computer by pressing Ctrl+Alt+Delete, then try again.
3. Press the 3 key to select Delete LD in the FastBuild Utility menu.



4. Press the Delete key to delete LD1, which is the default selection.



5. Press Ctrl+Y to confirm the deletion.

RAID card metadata is deleted from the disk, not any user data. Your operating system and all files are safe.

Press Ctrl-Y to delete the data in the disk!  
or press any other key to abort...

6. If a RAID Mode appears for LD2 in the Delete LD menu, repeat step 4 to delete LD2.
7. Press the Esc key to exit the Delete LD menu and return to the main menu.
8. Press the 2 key to select Define LD.

FastBuild (tm) Utility (c) 2004-2005 Promise Technology, Inc.

[ Main Menu ]

View Drive Assignments.....[ 1 ]  
Define LD.....[ 2 ]  
Delete LD.....[ 3 ]  
Controller Configuration.....[ 4 ]

[ Keys Available ]

Press 1..4 to Select Option

[ESC] Exit

9. Press the Enter key to select LD1, which is the default selection.

FastBuild (tm) Utility (c) 2004-2005 Promise Technology, Inc.

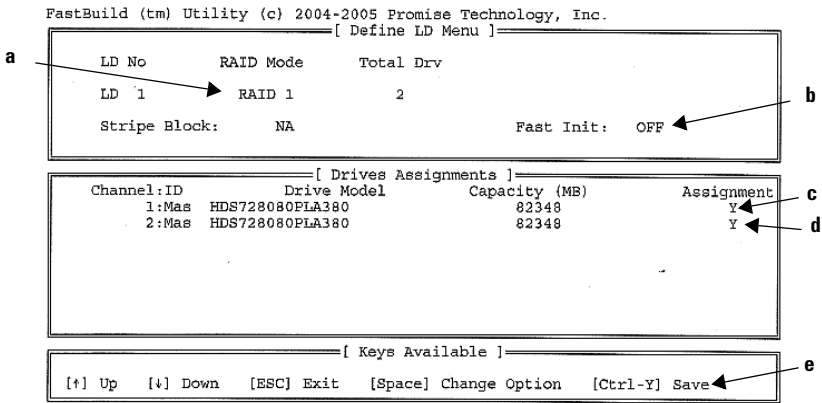
[ Define LD Menu ]

LD No	RAID Mode	Total Drv	Capacity(MB)	Status
LD 1	---	---	-----	---
LD 2	---	---	-----	---

[ Keys Available ]

[↑] Up [↓] Down [ESC] Exit [Enter] Select

10. In the Define LD menu, do the following.
  - a. Press the spacebar to change the LD1 RAID mode to RAID1.
  - b. Arrow down to FAST INIT, then press the spacebar to change FAST INIT to OFF.
  - c. Arrow down to Channel 1, then press the spacebar to change the Channel 1 assignment to Y.
  - d. Arrow down to Channel 2, then press the spacebar to change the Channel 2 assignment to Y.
  - e. Press Ctrl+Y to save changes.



11. Press the Y key to Create and Duplicate when this prompt appears.

```

Do you want the disk image to be
duplicated to another or do quick
initialize or create only? (Y/N)
Y - Create and Duplicate
N - Create Only
  
```

**IMPORTANT**

It is critical that you select the correct source disk to avoid loss of data. The source disk is your original hard disk drive in the RAID Device 1 bay.

12. Press the Enter key to accept Channel 1 as the source disk; it is highlighted.

```
FastBuild (tm) Utility (c) 2004-2005 Promise Technology, Inc.
-----[Source Disk]-----
-----[Target Disk]-----
-----[Please Select A Source Disk]-----
Channel:ID      Drive Model      Capacity (MB)
  1:Mas  HDS728080PLA380      82348
  2:Mas  HDS728080PLA380      82348
Channel 1
-----[ Keys Available ]-----
[↑] Up  [↓] Down  [ESC] Exit  [Enter] Select
```

13. Press the Y key to duplicate the image.

```
Start to duplicate the image...
Do you want to continue? (Yes/No)
Y - Continue, N - Abort
```

The duplication process takes 50 minutes or more. Wait until it is 100% complete before continuing.

```
Please Wait . . . . .
Duplicating The Image      1 % Completed
```

14. Press Esc to return to main menu, then again to exit the FastBuild utility.
15. Press the Y key to confirm the system restart.

```
System is going to REBOOT!
Are You Sure?
Y - Reboot / Any Key - Back
```

The message 'Operating System Not Found' appears.

Continue to next section to configure the system BIOS.

# Configure the System BIOS

Follow these steps to configure the system BIOS.

1. Press Ctrl+Alt+Delete to restart the computer, if needed.
2. Press the F2 key when prompted during startup to enter the System BIOS.

Press <F2> to enter SETUP

If F2 is not pressed at the right time and you see Operating System Not Found, restart the computer again by pressing Ctrl+Alt+Delete.

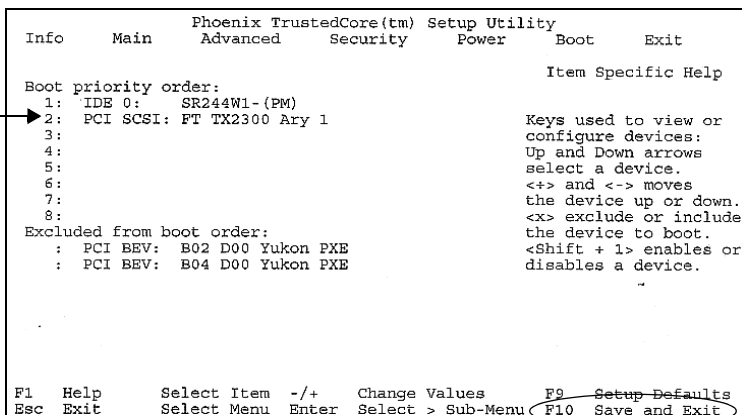
3. Arrow right to select the Boot menu.

Phoenix TrustedCore(tm) Setup Utility						
Info	Main	Advanced	Security	Power	Boot	Exit
					Item Specific Help	
BIOS Version		0.101				All items on this menu cannot be modified in user mode. If any items require changes, please consult your system Supervisor.
BIOS Date		04/12/06				
CPU Type		Intel(R) Celeron(R) CPU 2.66GHz				
CPU Speed		2.66 GHz				
Cache Ram		256 KB				
Installed memory		512 MB				
Product Name		VersaView				
Manufacture Name		Rockwell / A-B				
Runtime hours		237				
F1	Help	Select Item	-/+	Change Values	F9	Setup Defaults
Esc	Exit	Select Menu	Enter	Select > Sub-Menu	F10	Save and Exit

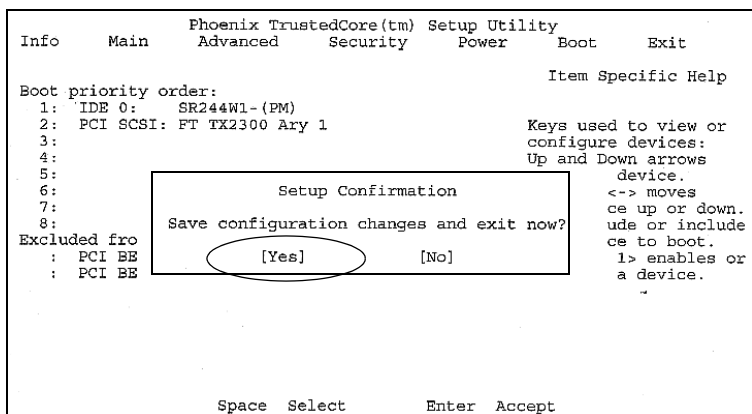
4. Arrow down to highlight PC SCSI: FT TX2300 ARY1.

Info	Main	Phoenix Advanced	TrustedCore(tm)	Setup Utility	Power	Boot	Exit
							Item Specific Help
Boot priority order:							Keys used to view or configure devices: Up and Down arrows select a device. <+> and <-> moves the device up or down. <x> exclude or include the device to boot. <Shift + l> enables or disables a device.
1: IDE 0: SR244W1-(PM)							
2:							
3:							
4:							
5:							
6:							
7:							
8:							
Excluded from boot order:							
1: PCI SCSI: FT TX2300 Ary 1							
: PCI BEV: B02 D00 Yukon PXE							
: PCI BEV: B04 D00 Yukon PXE							
F1	Help	Select Item	-/+	Change Values	F9	Setup Defaults	
Esc	Exit	Select Menu	Enter	Select > Sub-Menu	F10	Save and Exit	

5. Press the x key to move PCI SCSI: FT TX2300 ARY1 to Boot priority order 2.



6. Press the F10 key to save and exit.
7. Press the Enter key to accept Yes and save configuration changes.

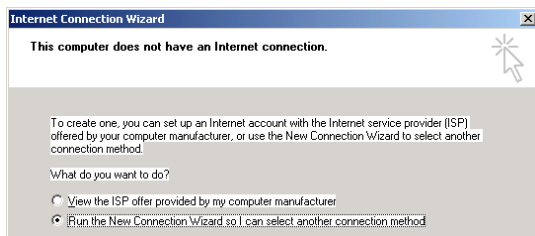


The system automatically restarts.

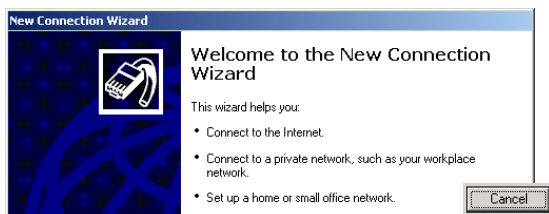
## Validate RAID Installation

Follow these steps to validate the RAID system is installed and configured correctly.

1. Double-click the WebPAM icon on the desktop.
2. Configure an Internet connection if your computer does not have one.
  - a. Select Run the New Connection Wizard so I can select another connection method and press OK.



- b. Select Cancel on the New Connection Wizard screen.



- c. Double-click the WebPAM icon again.
3. On the Promise Array Manager login screen:
  - a. Type **admin** for the Login ID.
  - b. Type **admin** for the Password.
  - c. Click Sign In.

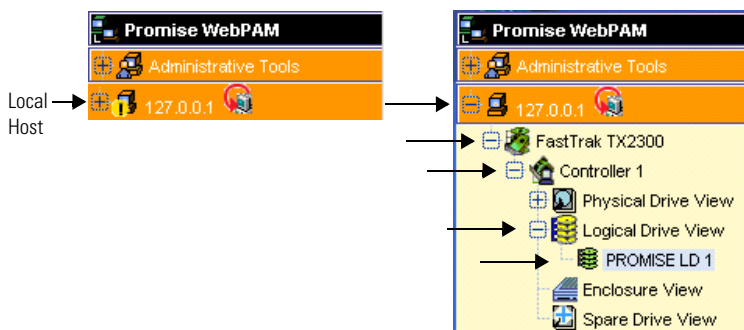




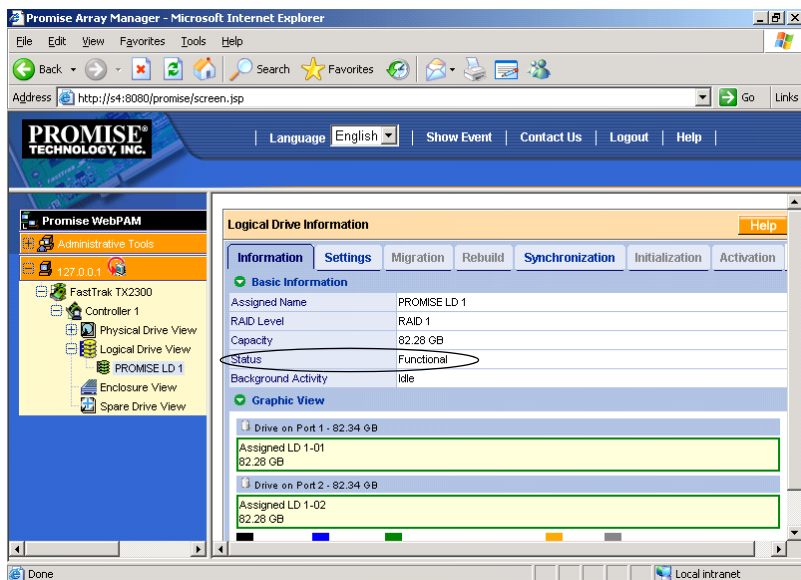
4. Click + to expand the local host.

The default is 127.0.0.1. Your local host may be different.

- a. Expand FastTrack TX2300.
- b. Expand Controller 1.
- c. Expand Logical Drive View.
- d. Select Promise LD1.



5. Verify that the Status of Promise LD1 is Functional.



You have successfully completed the RAID installation and your system is now properly configured for RAID1 operation.

## HDD Indicator

Because your system is configured for RAID 1 operations, the HDD indicator will no longer flash during hard disk drive activity.

## Hard Disk Drive Failure

If a hard disk drive failure occurs, the default configuration is that you will hear a beep and see a message in the upper corner of your desktop, similar to this.



WebPAM is the primary tool for troubleshooting and resolving RAID issues.

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### ATTENTION



You can configure your WebPaM tool for popup, email or audible notification when a drive failure occurs. The popup notification may not be visible with some applications. For example, application graphics may obscure the popup notification. If this is the case, you may prefer email or audible notification.

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For additional notification options, and information on responding to or troubleshooting RAID messages, or using WebPAM, refer to the manufacturer's user manual on the white, VersaView Accessories CD.

## Hot Swapping

The hard drives connected to the RAID card in your VersaView Light Non-display computer are hot swappable under these conditions.

- Computer is Series A, Revision B, or later.
- RAID card is connected to the SATA backplane as described in these installation instructions.

Hot swapping means you can disconnect and connect devices while the computer is on and have those devices be detected and operate without having to restart the computer.

## Additional Resources

For additional information on the VersaView Light Industrial Non-display computers, refer to these publications.

Resource	Description
VersaView Light Industrial Non-display Computers, user manual, publication 6177R-IN001	Provides procedures to machine and wall mount the 750R computer and rack mount the 1450R computer. It also describes how to make peripheral, power, and network connections.
VersaView Light Industrial Non-display Computers, installation instructions, publication 6177R-UM001	Gives an overview of the system and provides procedures on how to install the computer, set up computer connections, operate the computer, and troubleshoot the computer.
FastTrack user manual	Provides information on how to use, maintain, and troubleshoot your RAID system. An electronic version of this publication is on the white, VersaView Accessories CD shipped with your RAID card. Locate the file FastTrak_TX_Series_User_vx.x.pdf.

You can view or download publications at <http://literature.rockwellautomation.com>. To order paper copies of technical documentation, contact your local Rockwell Automation distributor or sales representative.

# Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At <http://support.rockwellautomation.com>, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect Support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://support.rockwellautomation.com>.

## Installation Assistance

If you experience a problem with a hardware module within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your module up and running.

United States	1.440.646.3223 Monday – Friday, 8am – 5pm EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

## New Product Satisfaction Return

Rockwell tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning, it may need to be returned.

United States	Contact your distributor. You must provide a Customer Support case number (see phone number above to obtain one) to your distributor in order to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for return procedure.

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